Executive Summary

Project Title: Abundance and Run Timing of Adult Salmon in Tanada Creek
Evaluation of Lake Productivity of Tanada Lake

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Total Cost: FY03 $60,309

Project Dates: May through September 2003

Geographic Area: Cook Inlet/Gulf of Alaska

Information Type: Fish stock status and trends

Issue:

The Batzulnetas subsistence fishery targets two sockeye salmon stocks that utilize Tanada Lake for spawning and rearing habitat. Six years of weir data show annual variations in abundance of Tanada Creek runs ranging from 1,650 to 28,000 sockeye. The ability to predict variations in the Tanada Creek run will provide a valuable tool to managers and will benefit subsistence users of the Upper Copper River fishery. Escapement estimates in-season are a useful tool to manage the Batzulnetas fishery.

Tanada Lake provides spawning and rearing habitat for two sockeye salmon stocks in Wrangell - St. Elias National Park and Preserve (WRST). Correlations between lake productivity and juvenile sockeye growth and survival have been clearly established (Nelson 1958, Kyle and others 1989, Koenings and Burkett 1987). A limnological investigation of Tanada Lake will provide data necessary to determine if variations of adult sockeye salmon escapement correlate with fluctuations in lake productivity.

Objectives:

1) To monitor annual variations in abundance and timing of sockeye and chinook salmon in Tanada Creek.
2) To compare weir counts with video counts to determine the functionality and accuracy of using a video escapement operation as a long-term method of estimating salmon escapement in Tanada Creek.
3) To determine if variations in water quality and zooplankton biomass correlate with variations in adult sockeye salmon escapement in Tanada Lake.
4) To provide an educational opportunity for local students and residents to learn about the Tanada Creek salmon runs and how the weir counts help to provide information needed to manage subsistence fisheries on the Copper River.

Methods:

Investigators will install a weir and video tower to count migrating adult salmon. Weir and camera counts will be compared to determine the effectiveness of the video tower. A portion of sockeye salmon will be marked. Salmon carcasses will be recovered and a mark and recapture estimate of the total population will be derived. Water quality in Tanada Lake will be measured 6 times throughout the summer. The following parameters will be measured in the field; temperature and dissolved oxygen profiles to a maximum depth of 55 m, light penetration, conductivity, total dissolved solids, pH, alkalinity, hardness and secchi disk transparency. One zooplankton tow will be taken at each

station during each sampling effort. Zooplankton samples will be identified to species, volumetric and areal density, body size and biomass will be calculated.

Products:
Annual progress reports will be written and reproduced in electronic and text format. Copies of the reports will be submitted to the Fishery Information Service, U.S. Fish and Wildlife Service, and Alaska Resource Library and Information System. Data, reports and slides will be archived according to NPS standards.

This project will assess sockeye abundance and run timing of Tanada Creek using weir and video escapement counts. Limnology data collected throughout this project can be compared with similar data collected by the Park in 1991 to determine if there have been significant changes in the Tanada Lake system over the past 10 years.

Experience of Investigators: WRST implemented this project in 2000 and 2001 and is currently preparing for the 2002 season. The principal investigator of the project has 13 years of experience performing fisheries monitoring programs, his assistant has five years of experience performing fisheries monitoring programs.

Partnerships/Collaboration:
The Wrangell-St. Elias Subsistence Resource Commission (SRC) and the South Central Regional Advisory Council (RAC) both support the implementation of this project. The results of the 2001 weir counts were presented to the SRC meeting in September at the village of Mentasta Lake, to the South Central Regional Advisory Council in October at their meeting in Anchorage, and to the Southeast Regional Advisory Committee in October at their meeting in Yakutat. Mount Sanford Consortium and the Mentasta Village Council are in support of the Tanada weir project.

Project Budget:

Categories	Year 2003
GS-7 Fisheries Tech local hire	17,500
3 GS-5 bio-Techs local hire	22,450
Supplies for Weir	3,000
Tribal Outreach	1,000
Purchase testing equipment	3,000
1 GS-4 bio-Tech local hire for six weeks	3,075
Back country per diem 2 people at $19/day for 18 days	684
Lab analysis for 24 samples: Water @ $300/ea. Zooplankton @ $100/ea.	 7,200 2,400
Total requested:	**60,309**

Local Hire Costs (included in total costs above):

	State	Federal	Non-agency
FY2003		**43,025**	